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ABSTRACT

This paper reports on the Leadership for Organisational Learning and Student Outcomes (LOLSO) Project, a new program that addresses the need to extend understanding of school restructuring initiatives in Australia. The project aims to change school practices by enhancing student learning. The LOLSO Project addresses six specific research questions: (1) How is the concept of organizational learning defined in Australian secondary schools? (2) What conditions inside and outside Australian high schools account for variations in organizational learning? (3) Does the level of organizational learning in secondary schools contribute to the extent of students' participation in and engagement with school? (4) What proportion of organizational learning is accounted for by school leadership? (5) What leadership practices promote organizational learning in schools? and (6) What leadership training experiences can develop such practices and capacities in leaders? Questionnaires were developed for teachers, principals, and students. A total of 2,503 teacher and principal responses and 3,508 year-10 student responses were received. Results indicate that "resources" and "leader" emerged as the two dominant factors in terms of their total effect on organizational learning. "Active involvement," "school profile," "school autonomy," "distributed leadership," and "staff valued" also contributed strongly. Six tables contain conceptual and operational definitions, statistical results, and other information. Contains 43 references. (RJM)

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LEADERSHIP FOR ORGANISATIONAL LEARNING AND STUDENT OUTCOMES

THE LOLSO PROJECT:
The first report of an Australian three year study of international significance

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Paper presented at the annual meeting of the American Educational Research Association, Montreal, April 19-23, 1999

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LEADERSHIP FOR ORGANISATIONAL LEARNING AND STUDENT OUTCOMES - THE LOLSO PROJECT:

The first report of an Australian three year study of international significance.

Halia Silins, William Mulford and Silja Zarins

Introduction

The Leadership for Organisational Learning and Student Outcomes (LOLSO) Project addresses the need to extend present understandings of school restructuring initiatives that aim to change school practices with the intention of supporting enhanced student learning and development of students. The LOLSO Project is unique in Australia in a number of ways that includes: its large sample; its longitudinal nature; its attempt to operationalise the concept of organisational learning; its examination of the relationships among leadership, organisational learning and student outcomes; its use of a measure of student outcomes that is wider than standardised testing; its international comparisons; and. its use of findings to develop professional development for educational leaders.

The Project researchers recognise that too often educational reforms have been thwarted by the robust nature of established school practices (McLaughlin, 1998). Some forms of restructuring, however, are proving to be more beneficial than others. Schools moving from competitive, top-down forms of power to more collective and facilitative forms (Mulford, 1994) are finding greater success, as are those attempting to make not only first-order changes (i.e. in curriculum and instruction) but also those second-order changes which support efforts to implement first-order changes (i.e. culture and structure). Louden and Wallace's (1994) research on the Australian National Schools Network concludes that reforms, no matter how well conceptualised or powerfully sponsored, are likely to fail in the face of a cultural resistance from teachers.

Resistance to change is likely given that certain forms of restructuring challenge some existing teacher paradigms. Smylie, Lazarus & Brownlee-Conyers (1996) have shown, for example, that the greater the participative nature of decision-making, the greater the increase in perceived accountability, the more organisational learning opportunities for teachers. The greater the increases in accountability, the more learning opportunities available, the greater the reports of instructional improvement. The greater the reports of instructional improvement, the more positive the teacher-reported student outcomes, and the more likely improvements in reading and mathematics achievement test scores. However, at each stage of this sequence, teachers also reported a decline in perceived individual autonomy. The change in paradigm seems to be away from the teacher in his or her own classroom to the development of learning communities which value differences and support critical reflection and encourage members to question, challenge and debate teaching and learning issues (Peters, Dobbins & Johnson, 1996). How to do this is far from clear, but we believe the area of organisational learning offers valuable clues.

The indications are that the restructuring agenda depends on teams of leaders, whole staffs and school personnel, working together in collaboration with community members. The challenges these groups face require significant development of their collective, as well as their individual, capacities. While such organisational learning has long been the object of study in non-school organisations (e.g. Watkins & Marsick, 1993), little attention has been given to its nature or the conditions which foster it in schools (Mulford, 1998).

The Three Areas of Investigation

The LOLSO Project aims at extending present understandings of the nature of effective leadership in the context of school restructuring in Australian public schools; it focuses on investigating the nature of leadership contributions to the stimulation of organisational learning and inquires about the effects of both leadership and organisational learning on desired secondary school student outcomes.

Organisational Learning

There is growing support for the importance of organisational learning in schools (Chapman, 1997; Leithwood, Leonard & Sharratt, 1998; Louis, 1994; Mulford, Hogan & Lamb, 1997). In our study, organisational learning refers to the way the whole school staff, collaboratively and on a continuous basis, learn and put learnings to use. It is this collective, continuous learning initiative that results in a learning organisation. A learning organisation is one that learns continuously and transforms itself. Learning takes place in individuals, teams, the organisation, and even the communities with which the organisation interacts. Learning is a ".... strategically used process, integrated with, and running parallel to work..." The learning organisation has embedded systems to capture and share learning (Watkins & Marsick, 1993, p. 8-9). Evidence from research by Leithwood and his collaborators (Leithwood & Louis, 1998) along with empirical and theoretical work of several others (Sackney, Walker & Hajnal, 1995; Fullan, 1993; Mitchell, 1994) supports the claim that the learning organisation is as promising a vision for restructured schools as it is for future non-school organisations (Senge, 1990).

While the promise of this vision for restructured schools is significant, there has been little empirical evidence concerning the specific characteristics of secondary schools able to behave as learning organisations. The aim of the LOLSO Project is to provide such evidence.

Leadership

The contributions of school leadership to past and current reform efforts have been found to be undeniably significant. Extensive research by Leithwood and his collaborators has identified those leadership practices that facilitate school restructuring in general (Leithwood, 1992; 1993; 1994; Silins, 1992; 1994a; 1994b). Most of the practices identified by this research are encompassed by a transformational model of leadership (Leithwood, Jantzi & Steinbach, 1999). Research describing productive forms of leadership has referred to aspects of this transformational model of leadership, for example, leadership which is empowering (Reitzug, 1994); sensitive to local community aspirations (Limerick & Nielsen, 1995); supportive of followers (Blase, 1993); builds collaborative school cultures (Deal & Peterson, 1994); and emphasises the importance of developing a shared vision (Mulford, 1994). The transformational conception of leadership includes: developing a mission and vision for the school and maintaining its relevance for all concerned; developing and maintaining a school culture supportive of the school's mission and the work required to achieve that mission; and nurturing the capacity and commitment of staff (Duke & Leithwood, 1994). This view of leadership also includes: structuring the school to facilitate achieving its mission and goals; ensuring the continuous improvement of programs and instruction; building and maintaining high levels of support for the school among parents and the wider community; and providing administrative support for achieving the school's vision, mission, and goals (Leithwood & Duke, 1999).

The LOLSO Project set out to look for insights concerning how such leadership develops, both as a role and a function, and how it interacts with both organisational learning and student outcomes.

Student Outcomes

In Australia, the lack of standardised testing of secondary students has resulted in the search for other measures of student outcomes. We have adapted as dependent variables a conceptualisation of student engagement with school, and student participation in and identification with school employed by Leithwood et al (1997) and drawn from Finn (1989). While there is some evidence that student engagement with school is a predictor of student achievement (Ainley, 1994; Finn & Cox, 1992; Lee & Smith, 1993), it can be argued that student participation in, identification and engagement with school are related to the quality of learning that goes on and to the levels of retention rates that educational reform initiatives attempt to achieve. Most school communities would also agree that the purposes of schooling go beyond student academic achievement (McGaw, Piper, Banks & Evans, 1992).

One contribution of this aspect of our research is to estimate the direct and indirect effects of the transformational model of leadership on secondary students. Early results from Leithwood's ongoing work in Canadian secondary schools (Leithwood & Jantzi, 1998) are challenging some

of the currently accepted views of the relationship between leadership and student outcomes. This work has suggested that student engagement might reduce the need for leadership and that teacher leadership effects could outweigh principal leadership effects thus putting greater emphasis on the importance of distributive leadership. Also the relationship between student outcomes and leadership may be curvilinear, that is, beyond some as yet unclear, optimal level of leadership, more leadership actually detracts from a schools clarity of purpose, sense of mission and vision, the maintenance of a supportive culture and the nurturing of the capacity and commitment of staff.

With education systems in Australia restructuring schools towards school-based management, and with the resultant focus on principal leadership, an urgent need has emerged to explore such relationships in greater depth and extend an understanding of the existing inter-relationships. This paper reports on the progress and findings of the LOLSO Project in its investigations of these relationships.

Research Design

The research design of the LOLSO Project required three phases of data collection conducted over three years. In Phase 1, in 1997, surveys of Year 10 students, their teachers and principal were conducted in 96 secondary schools from two Australian States, South Australia and Tasmania. South Australian Year 12 students, teachers and principals in these schools will be resurveyed in 1999. In the second phase of the study (1998), cross-sectional and longitudinal case study data were collected from schools selected from the sample to triangulate and enrich the information generated by the survey data. The third year, 1999, will also see the use of the results from the quantitative and qualitative data gathering to develop and trial professional development interventions for school leaders. Thus the project design allows for iterative cycles of theory development and testing, using multiple forms of evidence.

Towards the end of the Project, comparisons will be made with similar data collected from three Canadian provinces by Professor Kenneth Leithwood, Centre for Leadership Development, University of Toronto, Canada.

The LOLSO Project is addressing the following specific research questions,

1. How is the concept of organisational learning defined in Australian secondary schools?
2. What conditions inside and outside Australian high schools account for variations in organisational learning? That is, why are some schools seen as learning organisations and others are not?
3. Does the level of organisational learning in secondary schools contribute to the extent of students' participation in and engagement with school?
4. What proportion of organisational learning is accounted for by school leadership?
5. What leadership practices promote organisational learning in schools?
6. What leadership training experiences can develop such practices and capacities in leaders?

The results of the analysis of data obtained from the first phase of the data collection provide the findings that address aspects of research questions 1, 2, 3, 4, and 5.

Variables in the Study

Teacher and Principal Questionnaire

From an extensive review of the literature, we have defined learning organisations as schools that: employ processes of environmental scanning; develop shared goals; establish collaborative teaching and learning environments; encourage initiatives and risk taking; regularly review all aspects related to and influencing the work of the school; recognise and reinforce good work; and, provide opportunities for continuing professional development. This definition provided the constructs representing organisational learning items incorporated in the questionnaire and administered to teachers and principals.

School management variables were also included in the questionnaire drawing on items developed by Leithwood and Jantzi, Centre for Leadership Development, University of Toronto. Examples of the variables used were: processes employed for effective staffing; instructional support available for teachers; proximity of administrators to the core work of the school (i.e. teaching); the level of community focus in the school; and, teachers' perceptions of the degree of school autonomy secured by the administrators.

The sources of leadership in the school and the principal's leadership practices were identified. The questionnaire items were drawn from the transformational model of leadership (Duke & Leithwood, 1994). The following categories of items were included relating to the principal: setting the tone of the school; the nature of the decision-making structures; the level of individualised support and intellectual stimulation provided; and, establishment of school direction and goals and performance expectations.

Student Questionnaire

Student participation was defined as the extent and nature of students' overt involvement in the classroom, school governance, and co-curricular activities. Engagement or identification with school was defined as the extent to which students feel affiliated, bonded, attached or committed to the school. Questionnaire items were drawn from those developed by Leithwood and Jantzi for research purposes of the Centre for Leadership Development to reflect these constructs of student participation and engagement. It was hypothesised that such variables were likely to be reliable predictors of student achievement and school retention, which are common goals of school restructuring.

Additional variables were included: students' sense of academic self-efficacy, perceptions of the quality of instruction they receive, and family educational culture. Although we have included socio-economic status (SES) as a demographic variable, we believe, along with Leithwood (Leithwood & Jantzi, 1998), that family educational culture is likely to be a better moderating variable than SES.

Methods of Analysis

Sample

The Phase 1 survey yielded a total of 2503 teacher responses (including principals) and 3508 Year 10 student responses. A random, stratified by size, sample of 50 schools were drawn in South Australia. This represented just over half of the public secondary schools in this State. The Tasmanian sample consisted of the full population of secondary schools in that State. The analysis of this data from a total of 96 schools has proceeded in three stages:
Stage 1 - Exploration and identification of the nature of the teacher, principal and student information for South Australia and Tasmania.
Stage 2 - Empirical investigation of the dimensions of the hypothesised variables.
Stage 3 - The formulation of hypothesised models to test the nature and strength of the relationships between the variables included in the study and to understand the interactive nature of leadership, organisational learning and student outcomes.

Stage 1 - Identification of data

Version 6.0.3 SPSS statistical software package was used to develop working files containing the data from teacher and student questionnaires for each State. Several data reduction procedures were employed including: rating scale analysis from the Quest program (Adams and Khoo, 1993) to reduce the number of questionnaire items to be analysed to those that fit the Rasch scale for each section of the two questionnaires; exploratory factor analysis with principal component extraction and varimax rotation to help develop scales underlying the constructs to be used in further analysis; and principal component extraction to confirm scales. Reliability estimates for each scale were calculated using Cronbach alpha. All scales indicated a high reliability in the range of $\alpha = 0.74 - 0.92$.

Stage 2 - Dimensions of hypothesised variables
The structure of the Leader construct was confirmed and defined in terms of a six factor nested model. The six factors are operationally defined and presented in Table 1. Also, the development of the Organisational Learning construct was confirmed as a four factor nested model. The four factors are operationally defined and presented in Table 2. Empirical investigation of the dimensions of these two hypothesised variables were carried out using confirmatory factor analyses and analysis of covariance structures employing the maximum likelihood estimation process with the LISREL 8 program (Jöreskog & Sörbom, 1989). The procedures and results of this process have been reported elsewhere (Silins, Zarins and Mulford, 1998; Mulford & Silins, 1998).

Stage 3 - Path Models
Two hypothesised models, Model 1 and Model 2, were developed using path analysis with latent variables to investigate the nature and strength of all the relationships in the model and to address aspects of the research questions of the project.

The main aims of developing a path model are:
- To test the construction of the latent variables from the observed or manifest variables (provided by the strength of the estimation loadings of the observed measures on the constructed variables),
- To examine causal relationships between the constructs or latent variables of the model (provided by the strength of the path coefficients between the variables in the model),
- To estimate the magnitudes of the hypothesised relationships (provided by the estimates of variance explained for each variable).

Path Model 1 – Predictors of Organisational Learning
In Model 1, 11 latent variables (described in Table 3) were constructed from the manifest variables and used to examine the influence of school, leader and teacher variables on Organisational Learning as an outcome measure. Organisational Learning was defined by four factors (Collaborative Climate, Taking Initiatives and Risks, Improving School Practices and Professional Development). The factors selected for study were based on a review of the leadership and educational restructuring literature and preliminary correlation analysis. A combination of contextual external and internal influences on the organisation and functioning of schools as Learning Organisations were selected from the teacher data base. External predictors were School Profile (Size in 1997, Area [metropolitan or country] and Principal's Gender) and Teacher Profile (Years in Education, Years at their School, Age and Gender). The internal organisation predictors were based on teacher responses and included: Resources (perceived availability of resources to improve staff effectiveness); Leader (principal's transformational practices); Community Focus (extent that the school is working with the community); Distributed Leadership (a profile of the identified sources of leadership in the school); Staffing Policies (extent staff placed in areas of competence and consulted); Active Involvement (evidence of administrators' interest in student progress and extent of positive presence in the school); Staff Valued (extent new staff are welcomed and all staff contributions valued equally); and, School Autonomy (extent of teacher satisfaction with leadership and perceived secured autonomy for the school).

Path Model 2 – Predictors of Participation in and Engagement with School and Student Outcomes
Table 4 presents the 14 latent variables included in Model 2 to examine the influence of SES, school, leader, teacher and student variables on participation in and engagement with school. The variables representing participation in and engagement with school were Participation in Extracurricular Activities, Absenteeism (number of times student missed a whole day, sent out for misbehaviour, given detention and suspended) and Engagement with Schoolwork (extent all expected homework completed, finish schoolwork on time, put energy into work, do extra work out of interest, respond to questions in class, set own goals). Student Outcomes were measured by seven self reported student assessments of performance (time spent on homework, extent of understanding of material covered in class, extent of confidence in school success, extent of

learning, strength of expectation of graduating, satisfaction with marks and level of marks expected at the end of the year).

The factors selected for study were based on a review of the leadership and educational restructuring literature and preliminary correlation analysis. A combination of contextual external and internal influences on Participation in and Engagement with School and Student Outcomes were selected from the combined teacher and student database. External predictors were SES (mother's and father's occupation, Australian Bureau of Statistics' categorisation of postcodes of residence according to distribution of resources and distribution of education/occupation categories), Home Background (extent of parental support and involvement in student's education, intellectually stimulating home environment, availability of study aids and space to work quietly at home), School Profile (Size in 1997, Area [metropolitan or country] and Principal's Gender) and Teacher Profile (Years in Education, Years at their School, Age and Gender). The internal organisation predictors were based on teacher responses and student responses and included, Leader (principal's transformational practices), Active Involvement (evidence of administrators' interest in student progress and extent of positive presence in the school), Staff Valued (extent new staff are welcomed and all staff contributions valued equally), School Autonomy (extent of teacher satisfaction with leadership and perceived secured autonomy for the school), Organisational Learning (Collaborative Climate, Taking Initiatives and Risks, Improving School Practices and Professional Development) and Student Views (extent of positive views of class teaching, feeling good about the school, teachers perceived as taking an interest in students, importance of education and social climate).

Path Analysis

The path models were tested using a latent variables partial least squares path analysis (PLSPATH) procedure (Sellin & Keeves, 1996). The initial design of the models is fully recursive wherein each variable was positioned as it was predicted to influence the succeeding variables in the model. Along with the contextual factors in Model 1 (School Profile and Teacher Profile), Resources, Leader factors and the internal school organisation factors depicted as Community Focus, Distributed Leadership, Staffing Policies, Active Involvement, Staff Valued and School Autonomy were hypothesised to influence Organisational Learning. Resources, Leader, Community Focus, Distributed Leadership, Staffing Policies, Active Involvement, Staff Valued and School Autonomy were depicted as mediating variables by their placement between the antecedent external variables and the criterion variable, Organisational Learning.

In Model 2, along with the contextual factors (SES, Home Background, School Profile and Teacher Profile), Leader, Active Involvement, Staff Valued, School Autonomy, Organisational Learning and Student Views were depicted as mediating variables by their placement between the antecedent external variables and the criterion variables of Participation in Extracurricular Activities, Absenteeism, Engagement with Schoolwork and Student Outcomes

In both models analysis proceeded in two stages. First, the outer model was refined by successively deleting the manifest (direct measure) variables that did not contribute to explaining the latent variable (construct). All measures that had a loading (in the same sense as a principal components analysis) of at least twice their standard error were retained. Once the outer model was stable, the inner model was refined. Again, all paths were deleted where the path coefficient (similar to regression coefficient) was less than twice its standard error.

The final models Table 5 (Model 1, Figure 1) and Table 6 (Model 2, Figure 2) show the variables that exerted an effect on both the outcome variable and the other latent variables in both models. Direct, indirect and total effects are reported along with the jackknife standard errors and correlations.

The School as the Unit of Analysis

This Project's research focus is on school level factors associated with organisational learning and with student outcomes. School characteristics such as size of school, school area (metropolitan or country) and gender of the principal as well as teacher profiles consisting of years of educational experience, years at their school, age and gender were included in this study.

The SES and Home Background variables were taken from the student data that were then aggregated to the school level. The school is a well-defined and logical unit of analysis for addressing the research questions in this study.

Research in the field is often associated with constraints, which have to be accommodated if the research is to proceed. The lack of standardised testing of Year 10 students gave us little option but to employ outcome measures based on teacher and student reporting. At the time of this study, teachers were reluctant to be identified on the questionnaires and schools were more likely to participate if students and teachers remained anonymous. Analysis of the data was restricted at the outset to the school level since information that would allow complete nesting of the student data within teachers, and teachers within schools was not available.

School level models have been presented to indicate the way in which teachers, students and principals work and think in the school. Aggregation to the school level has an inherent meaning in this study since the teachers and leader are providing information about the same leader and his or her operation in the school. Aggregation bias will inflate the intensity of the same level relationships in the model although the relative strengths of the variables included in the model will be probably preserved. The effects in the model of teacher variables on Student Outcomes and the School Profile variable on Student Outcomes avoid aggregation bias.

In order to counteract the effects of aggregation bias that are present, two parallel individual level teacher and student models were developed and compared with the school level teacher and student models. An examination of the nature and strength of the relationships in these teacher and student level data models indicated a picture not inconsistent with the relationships in the school level models. Therefore, the school level models were accepted as reasonably valid representations of what goes on in Australian secondary schools.

Results

Model 1 – Final Path Model of the External and Internal Predictors of Organisational Learning

Table 3 reports the significant estimation loadings of the observed variables for each construct in Model 1. The strength of the loadings indicates which of the manifest variables predominated in the definition of their construct. In these results for the final Model 1, School Profile was defined as the size of the school in 1997 and the school area. The gender of the principal was not significant in this model. The strength and positive sign of the loadings indicate that the larger, metropolitan schools predominated. Similarly for Teacher Profile, the genders of the teachers and the years at their school were dropped from the model because they did not satisfy the criterion for inclusion. The significant characteristics of the teachers in this model are their years of experience and their age. For all the other constructs in the model, the observed variables contributed significantly.

Table 5 reports the nature and strength of the relationships between the 11 latent variables in Model 1. Five variables emerged as direct predictors of Organisational Learning: School Autonomy (p=0.35), Staff Valued (p=0.32), Leader (p=0.16), Distributed Leadership (p=0.15) and School Profile (p=-0.12). Resources and Leader emerged as the two dominant factors in terms of their total effect on Organisational Learning. However, Active Involvement, School Profile, School Autonomy, Distributed Leadership and Staff Valued contributed strongly. Community Focus had a moderate and indirect effect whereas Staffing Policies had the smallest, significant total (t = 0.11) and indirect effect on Organisational Learning. Teacher Profile had no influence on Organisational Learning.

Resources and Leader exerted the strongest (t=0.65) (t=0.63), respectively, total effects on Organisational Learning. Although there was no direct influence of Resources on Organisational Learning, its effect operated most strongly through Leader (p=0.73), Distributed Leadership (p=0.25) and Active Involvement (p=0.16) and indirectly its strongest effects were through Active Involvement, Staffing Policies, School Autonomy and Staff Valued. Resources exerted a strong (p=0.31) direct and indirect (i=0.71) influence on Staffing Policies and its strongest

indirect (i=0.77) effect was on Active Involvement. Leader exerted a direct effect (p=0.16) on Organisational Learning and was most strongly (p=0.78) and directly associated with Community Focus and with Active Involvement (p=0.60). Together with Resource, Leader had the strongest (i=0.47) indirect influence on Organisational Learning. Active Involvement was also strongly (i=0.44) and indirectly associated with Organisational Learning. Active Involvement was a strong mediator of effects through School Autonomy (p=0.74) and Staff Valued (p=0.56).

School Autonomy (including satisfaction with leadership) exerted the strongest (p=0.35) direct effect on Organisational Learning. School Autonomy also mediated the strong influence of Leader to Organisational Learning through Active Involvement.

Staff Valued exerted the second strongest (p=0.32) direct influence on Organisational Learning and also mediated the strong effects of Leader through Active Involvement, and the effects of School Profile, Resources and Community Focus through Distributed Leadership and through School Autonomy onto Organisational Learning.

School Profile exerted a significant direct and negative (p=-0.12) effect on Organisational Learning with a strong and negative (t=-0.37) total effect indicating that the smaller metropolitan and country schools are more likely to operate as learning organisations. The moderate indirect (i=-0.25) and negative effect of School Profile on Organisational Learning mainly operated through Resources (p=-0.32) indicating that it is the teachers in the smaller schools who believe sufficient resources are available to improve staff effectiveness.

Although the strong (p=0.55) direct path from School Profile to Teacher Profile indicated that the larger metropolitan schools in this model have an experienced and ageing staff, the effects of this teacher profile was insignificant on all variables except Staffing Policies.

Community Focus was a mediator of effects of Leader and Resources to Organisational Learning through its strongest (p=0.55) association with Distributed Leadership and moderately strong (p=0.33) association with Staffing Policies.

The combined effect of variables in this model explained 87 per cent of the variance of Organisational Learning, with a $Q^2 = 0.86$ indicating a very stable outcome measure and stable model. It is acknowledged that this measure is inflated because of aggregation bias, however, the parallel individual level model explained 70 per cent of the variance of Organisational Learning which was associated with a high $Q^2 = 0.70$ indicating stability of the outcome measure and model. These measures indicate that the school level model results can be interpreted with some confidence and Model 1 can be accepted as a well-defined model.

Model 2 – Final Path Model of the External and Internal Predictors of Student Participation in and Engagement with Schoolwork and Student Outcomes

Table 4 reports the significant estimated loadings of the observed variables for each construct in Model 2. The strength of the loadings indicates which of the manifest variables predominated in the definition of their construct. In these results for the final Model 2, School Profile was defined as the size of the school in 1997 and the school area. The gender of the principal was not significant in this model. The strength and positive sign of the loadings indicate that the larger, metropolitan schools predominated. Similarly for Teacher Profile, gender was dropped to leave years of education experience, teachers' age and years at their school as the significant characteristics of the teachers in this model. For all other constructs in the model the observed variables contributed significantly.

Table 6 reports the nature and strength of the relationships between the 14 latent variables in Model 2. Five variables emerged as direct predictors of Student Outcomes: Engagement in Schoolwork (p=0.34), Student Views (p=0.32), Home Background (p=0.20), Absenteeism (p=-0.17) and Teacher Profile (p=0.12). Home Background and Student Views were dominant factors in terms of total effect on School Outcomes. Apart from its direct effect, Home Background exerted a strong (i=0.44) indirect effect on Student Outcomes through its effect on

Student Views (p=0.57) and Engagement in Schoolwork (p=0.40). Student Views' indirect influence mostly operated through the dominant and negative (p=-0.49) association with Absenteeism and the strong and positive (p=0.32) association with Engagement with Schoolwork. SES had a strong indirect (i=0.35) influence on Student Outcomes mostly through influencing Teacher Profile (p=0.38) and Home Background (p=0.32). The significant indirect (i=0.13) effect of Organisational Learning on Student Outcomes is exerted through its influence on Student Views. The remaining latent variables, School Profile, Leader, Active Involvement, Staff Valued and School Autonomy had little influence on Student Outcomes.

The students with a higher SES are strongly (p=-0.64) associated with the more moderately sized metropolitan schools and, to a lesser extent, the students from the more supportive Home Background are also more likely to attend these schools. School Profile is strongly and negatively (p=-0.60) associated with students who participate in extracurricular activities, indicating that the smaller metropolitan schools are more successful in involving students in extracurricular activities. Home Background is a positive and direct (p=0.31) predictor of extracurricular involvement. Participation in Extracurricular Activities is one of the four criterion variables in this model, including Absenteeism, Engagement with Schoolwork and Student Outcomes.

Absenteeism (related to behavioural problems) is strongly and negatively (p=-0.49) influenced by Student Views, the more positive the views the less likely that students will be absent. SES exerts a moderate and negative (p=-0.31) influence on Absenteeism indicating that the students from higher SES are also less likely to be absent. In turn, Absenteeism influences Engagement with Schoolwork, moderately and negatively (p=-0.27) indicating that students missing school mostly because of disciplinary measures are less likely to engage with their schoolwork. The positive and direct (p=0.23) influence of Staff Valued on Absenteeism indicates that teachers who are supported and valued by their school's administrators are likely to take disciplinary action which may remove students from the classroom. Staff Valued also exerts a strong and positive (p=0.43) influence on Organisational Learning. Promoting Organisational Learning leads to an indirect but significant negative (i=-0.11) effect on Absenteeism indicating a counteractive influence.

The negative paths associated with variables in the model should be noted. School Profile's moderate and negative (p=-0.26) association with Leader and the smaller but significant negative (p=0.14) association with Organisational Learning indicated that teachers in the larger schools are less likely to experience Leader practices and, to a lesser extent Organisational Learning as defined in this model. Leader exerted a very strong (p=0.90) influence on Active Involvement which mediated strong Leader influence on both Staff Valued and School Autonomy and, through these variables, the strong (i=0.75) indirect effect of Leader operated on Organisational Learning. This in turn mediated a lesser but significant and positive effect on Student Views. However, the direct effect of Leader on Engagement with Schoolwork was moderately negative (p=-0.20).

The combined effect of variables in this model explained 74 per cent of the variance in Student Outcomes, with a $Q^2 = 0.71$ indicating a very stable outcome measure and stable model. It is acknowledged that this measure is inflated because of aggregation bias, however, the parallel individual student level model explained 58 per cent of the variance in Student Outcomes which was associated with a moderately high $Q^2 = 0.58$ indicating a stable model. These measures indicate that the school level model results can be interpreted with some confidence and model 2 can be accepted as a well-defined model.

Reporting the Findings from Phase 1

What are the identifying characteristics of secondary schools where organisational learning is promoted and facilitated?

A survey of principals and teachers uncovered four categories of characteristics that identify Australian secondary schools as learning organisations.

These are described in Table 1 as:
characteristics indicative of a collaborative climate - schools where staff collaboration is the norm;
characteristics that facilitate taking initiatives and risks – schools where staff feel free to experiment;
characteristics that support improving school practices – schools where the staff review programs and performance regularly; and,
characteristics that encourage professional development – schools where staff engage in professional development activities.
An examination of the estimation loadings of these four factors, provided in Table 3, defining the variable Organisational Learning, indicates that the four observed variables all loaded strongly on this latent construct. These four categories of characteristics were empirically confirmed as being valid and reliable representations of what is understood by the organisational learning construct in Australian secondary schools.

What conditions inside and outside Australian high schools account for variations in organisational learning? That is, why are some schools seen as learning organisations and others are not?

Figure 1 presents the final path model for Model 1 that indicates the nature and strength of the relationships between the variables predicting organisational learning. Size and school area were significant characteristics of the school in this model. The principal's gender was not a factor in promoting organisational learning. The larger metropolitan schools, staffed by experienced and ageing teachers, did not provide the environment most conducive for organisational learning. The smaller metropolitan and country schools were more likely to perceive that sufficient resources were available to promote staff effectiveness. This perception of sufficiency was usually associated with a school principal employing transformational practices. Such practices were instrumental in establishing school characteristics that promoted organisational learning.

The principal in this model was visible, accessible and interested in student progress. This active involvement in the core work of the school helped to generate teacher satisfaction with leadership and a sense of school autonomy, which was strongly associated with organisational learning. The principal's interest and involvement in the school also established a school climate in which staff contributions were valued and organisational learning fostered. The principal often established strong links and a productive working relationship with the community. Responsiveness to the community supported a greater distribution of leadership in the school that influenced organisational learning directly as well as indirectly through valuing staff contributions, influencing teacher satisfaction with leadership and establishing a high degree of school autonomy.

The evidence from this research has demonstrated clearly that the predominant conditions accounting for variations in organisational learning between Australian secondary schools are perceived availability of resources together with a principal skilled in transformational leadership and administrators who are actively involved in the core work of the school. Effects of these conditions are mediated and supported in schools where teachers are satisfied with the leadership and experience higher levels of school autonomy. A strong condition explaining the variation in organisational learning between schools was the process of distributing leadership in the school so that a wider range of sources of leadership were identified by teachers, such as whole school staff working together, teacher teams, students, parents and other members of the community.

What proportion of organisational learning is accounted for by school leadership?

The best estimate of the proportion of organisational learning accounted for by school leadership in Model 1 can be calculated by multiplying the path coefficient of the direct effect of leadership on organisational learning by their correlation. The proportion of organisational learning accounted for by the principal (Leader) is 13 per cent (0.16 x 0.84). The variable Distributed Leadership represents all other sources of leadership in the school. The proportion of organisational learning accounted for by the whole school staff, teacher teams, community

members and students is 12 per cent (0.15 x 0.80). The total proportion of organisational learning accounted for by the total sources of school leadership is 25 per cent. This provides clear evidence for the strong contribution of school leadership to explaining the variation in organisational learning between schools.

What leadership practices promote organisational learning in schools?

Evidence for the key role of transformational leadership practices in the internal processes of the school has been provided by other studies (Leithwood, Tomlinson & Genge, 1996; Silins, 1994a). This research has supported six factors as promoting organisational learning. These six factors correspond reasonably closely to the transformational leadership concept developed by Leithwood and his collaborators. These are described in Table 2 as: Vision and Goals; Culture; Structure; Intellectual Stimulation; Individual Support; and Performance Expectation. An examination of the estimation loadings provided in Table 3 of the six factors defining the variable, Leader, indicates that the six observed variables all load strongly on this latent construct. All six factors contributed to defining the kind of leadership practices that promote organisational learning.

Does the level of organisational learning in secondary schools contribute to the extent of students' participation in and engagement with school?

Figure 2 presents the final path model for Model 2 which examined the influence of SES, Home Background, Leader, and Organisational Learning on students' participation in and engagement with school – represented by Participation in Extracurricular Activities, Absenteeism, Engagement in Schoolwork and School Outcomes. In this model, students with higher SES were more likely to come from a family background where parents helped them with schoolwork, provided study aids and took an interest in their schoolwork. These students were more likely to attend the smaller metropolitan schools. The size of the school was a factor in developing schools as learning organisations with the smaller schools having the advantage. The larger metropolitan schools were not as successful as the smaller schools in promoting student participation in extracurricular activities. Apart from the size of school, family background was the only other variable influencing student participation in extracurricular activities directly.

Student family background was shown to be a major factor in students' attitude to school, their views of education and the importance of school for their future. The family support that students received mainly influenced the extent of students' participation in and engagement with school. Students with a higher SES background were less likely to misbehave or miss work because of detentions. Behavioural problems interfered with engagement with schoolwork. Students who thought that teachers took an interest in them and enjoyed school were more confident about being successful at school, made sure they understood the material presented in class and were unlikely to cause discipline problems. The interrelationship between family background, student views about education and feelings about school were significant factors in bringing about students' engagement and participation in school and subsequently an expectation of succeeding in learning (Student Outcomes).

The larger metropolitan schools were not as likely to have principals who were employing transformational leadership practices. Schools with transformational leaders had leadership teams that developed a positive presence in the school and often worked with teachers to overcome problems. Principals who were actively involved with their staff created a climate of valuing contributions and a sense of autonomy and satisfaction with leadership. These factors in turn facilitated organisational learning. When principals looked to influence students' participation in school directly (for instance through influencing Engagement in Schoolwork) they were not as successful as when they worked with and through the teachers by being actively involved in what goes on in the school, by promoting school autonomy, organisational learning and influencing student views about education. Earlier studies on leadership, reviewed by Hallinger and Heck (1996), have also offered evidence for the indirect impact of leadership on school performance and student achievement. The indirect effects of leadership in the model confirm that students may not benefit from direct intervention of the principal. This study has

provided further evidence that indicates the impact of leadership on student performance operates more successfully through teacher effects (Leithwood, 1994; Silins, 1992).

In brief, the early evidence from this research indicates that the level of organisational learning in schools contributes indirectly to promoting student participation in and engagement with school - through influencing student views, providing professional development and support for teachers and modelling engagement in learning.

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Table 1
Conceptual and operational definitions of the six factor model for Leader

Construct	Description
Vision and Goals	Works toward whole staff consensus in establishing school priorities and communicates these priorities and goals to students and staff giving a sense of overall purpose. e.g. The principal helps clarify the specific meaning of the school's mission in terms of its practical implications for programs and instruction.
Culture	Promotes an atmosphere of caring and trust among staff, sets a respectful tone for interaction with students and demonstrates a willingness to change his or her practices in the light of new understandings. e.g. The principal shows respect for staff by treating us as professionals.
Structure	Supports a school structure that promotes participative decision making, delegating and distributing leadership to encourage teacher autonomy for making decisions. e.g. The principal distributes leadership broadly among the staff representing various viewpoints in leadership positions.
Intellectual Stimulation	Encourages staff to reflect on what they are trying to achieve with students and how they are doing it; facilitates opportunities for staff to learn from each other and models continual learning in his or her own practice. e.g. The principal is a source of new ideas for my professional learning.
Individual Support	Provides moral support, shows appreciation for the work of individual staff and takes their opinion into account when making decisions. e.g. The principal provides moral support by making me feel appreciated for my contribution to the school.
Performance Expectation	Has high expectations for teachers and for students and expects staff to be effective and innovative. e.g. The principal has high expectations for us as professionals.

Table 2
Conceptual and operational definitions of the four factor model for Organisational Learning

Construct	Description
Collaborative Climate	Schools where collaboration is the norm, where teachers participate in most significant school-level policy decisions and help to establish the school's vision or goals; discussions amongst colleagues are open and candid and information is shared with other members of the school community including parents; staff feel valued. e.g. The principal helps clarify the specific meaning of the school's mission in terms of its practical implications for programs and instruction.
Taking Initiatives and Risks	Schools where staff are empowered to make decisions and school structures support staff initiatives; school administrators are open to change. e.g. There are rewards for staff who take the initiative.
Improving School Practices	School staff keep abreast of external events that may impact on their school; information from professional associations is used to review current practices; staff actively seek to improve their work. e.g. Effectiveness of the teaching program is regularly monitored.
Professional Development	Staff are encouraged to develop professionally; other schools, external advisors and professional reading are sources of learning; developing skills of working in teams and sharing knowledge is seen as important. e.g. The school organisation does all it can to encourage staff to develop professionally.

Table 3
Description of variables in the model of factors influencing Organisational Learning - Model 1

Variables description and coding	Mean	S D	*PLS Estimation Loading
SCHOOL PROFILE [outward mode]			
Area (country or metropolitan)	.56	.50	.86
Size in 1997	632	283	.90
Principal's Gender (deleted)			
TEACHER PROFILE [outward mode]			
Years in Education	4.6	.65	.98
Years at their School (deleted)	3.04	.49	.97
Age			
Teacher's Gender (deleted)			
RESOURCES [unity mode]			
Resource to improve staff effectiveness	3.26	.36	1.0
LEADER [outward mode]			
Teacher level of agreement on six aspects of principal's leadership practices in the school. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree.			
Goal	3.57	.44	.98
Culture	3.63	.54	.96
Structure	3.68	.40	.95
Intellectual Stimulation	3.34	.43	.95
Individualised Support	3.50	.50	.94
Performance Expectation	3.89	.36	.88
COMMUNITY FOCUS [outward mode]			
Teacher level of agreement on four aspects of working with the school community. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Administrators sensitive to community (Ld5)	3.73	.37	.95
Administrators work with community reps. (Ld8)	3.67	.40	.95
Administrators incorporate community values (Ld18)	3.44	.41	.95
Productive working relations with community (Ld20)	3.47	.44	.95

* PLS Path Estimation reported as factor loadings

Table 3 continued

DISTRIBUTED LEADERSHIP [outward mode]			
Teacher identification of the leadership sources in the school and their strength of influence. 1=minimal; 2=moderate; 3=considerable; 4=very strong.			
Principal	3.30	.46	.31
Deputy principal	3.04	.44	.46
Department heads/coordinators	2.84	.27	.52
Individual teachers	2.68	.26	.61
Teacher committees/teams	2.57	.28	.76
Whole staff working together	2.64	.41	.79
School counselors	2.17	.46	.52
Students	2.08	.27	.65
School Council	2.20	.34	.59
Union representative(s)	2.03	.43	.34
Parents/other community members	2.08	.30	.69
STAFFING POLICIES [outward mode]			
Teacher level of agreement on three aspects of staffing. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Staff placed in areas of competence (Ld6)	3.40	.46	.91
Staffing is fair and equitable (Ld10)	3.20	.46	.87
Staff consulted on staffing requirements (Ld13)	3.05	.56	.87
ACTIVE INVOLVEMENT [outward mode]			
Teacher level of agreement on eight aspects of administrative involvement in the school's activities. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Administrators have positive presence (Ld2)	3.64	.58	.94
Administrators visible (Ld7)	3.75	.57	.93
Administrators easily accessible (Ld12)	3.92	.47	.93
Administrators interested (Ld16)	3.50	.50	.96
Administrators observe or inquire (Ld14)	2.71	.52	.89
Administrators work with teachers (Ld17)	3.00	.44	.93
Administrators discuss educational issues (Ld22)	3.86	.33	.89
Administrators review student progress (Ld21)	3.54	.42	.86
STAFF VALUED [outward mode]			
Teacher level of agreement on three aspects of staff being valued. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Induction process for new staff (Ld3)	3.28	.68	.54
New staff valued and welcomed (Ld15)	3.78	.39	.91
Staff contributions valued (Ld19)	3.23	.46	.91

Table 3 continued

SCHOOL AUTONOMY [outward mode]			
Teacher level of agreement on perceived school autonomy and satisfaction with school leadership. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Secured high degree autonomy	3.50	.40	.94
Teacher satisfaction with leadership	2.56	.39	.96
ORGANISATIONAL LEARNING [outward mode]			
Teacher level of agreement on four outcomes related to organisational learning. 1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Collaborative climate	3.62	.32	.88
Taking initiatives and risks	3.20	.33	.94
Improving school practices	3.41	.35	.95
Professional development	3.22	.22	.90

Table 4
Description of Variables in the Model of Factors Influencing Student Outcomes - Model 2

Variables description and coding	**Mean**	**S D**	***PLS Estimation Loading**
SOCIOECONOMIC STATUS [outward mode]			
Mother's occupation (Occm)	4.55	.74	.76
Father's occupation (Occd)	5.22	.59	.79
Residence category (Ecres)	931	66	.84
Education/occupation category (Edocc)	939	75	.91
HOME BACKGROUND [outward mode]			
Student level of agreement on home support for education.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Parents/guardians follow up homework (Hwkd)	2.74	.29	.57
Encourage extracurricular activities (Extrac)	3.26	.31	.67
Monitor school attendance (Atsch)	4.02	.35	.58
Attend school events (Schev)	2.76	.45	.56
Discuss schoolwork (Discuss)	3.28	.27	.71
Provide study aids at home (Staids)	3.81	.30	.74
Help with schoolwork (Help)	3.97	.24	.75
Conversations about world events (Worldev)	3.08	.27	.67
Space for study (Space)	3.62	.27	.61
Look after student's health (Health)	3.63	.25	.70
SCHOOL PROFILE [outward mode]			
Area (country or metropolitan)	.56	.50	.85
Size in 1997	632	283	.91
Principal's Gender (deleted)			
TEACHER PROFILE [outward mode]			
Years in Education (Yrsed)	4.6	.65	.97
Years at their school (Yrssch)	2.21	.42	.30
Age	3.04	.49	.98
Teacher's Gender (deleted)			

Table 4 continued

Variables description and coding	Mean	S D	*PLS Estimation Loading
LEADER [outward mode]			
Teacher level of agreement on six aspects of principal's leadership practices in the school.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree.			
Goal	3.57	.44	.98
Culture	3.63	.54	.96
Structure	3.68	.40	.95
Intellectual Stimulation (Inst)	3.34	.43	.95
Individualised Support (Inds)	3.50	.50	.94
Performance Expectation (Perf)	3.89	.36	.87
ACTIVE INVOLVEMENT [outward mode]			
Teacher level of agreement on eight aspects of administrative involvement in the school's activities.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Administrators have positive presence (Ld2)	3.64	.58	.95
Administrators visible (Ld7)	3.75	.57	.93
Administrators easily accessible (Ld12)	3.92	.47	.93
Administrators interested (Ld16)	3.50	.50	.96
Administrators observe or inquire (Ld14)	2.71	.52	.89
Administrators work with teachers (Ld17)	3.00	.44	.93
Administrators discuss educational issues (Ld22)	3.86	.33	.89
Administrators review student progress (Ld21)	3.54	.42	.86
STAFF VALUED [outward mode]			
Teacher level of agreement on three aspects of staff being valued.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Induction process for new staff (Ld3)	3.28	.68	.49
New staff valued and welcomed (Ld15)	3.78	.39	.92
Staff contributions valued (Ld19)	3.23	.46	.92
SCHOOL AUTONOMY [outward mode]			
Teacher level of agreement on perceived school autonomy and satisfaction with school leadership.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Secured high degree autonomy (Aut)	3.50	.40	.94
Teacher satisfaction with leadership (Tsat)	2.56	.39	.96

Table 4 continued

Variables description and coding	Mean	S D	*PLS Estimation Loading
ORGANISATIONAL LEARNING [outward mode]			
Teacher level of agreement on four outcomes related to organisational learning.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Collaborative climate (Coop)	3.62	.32	.88
Taking initiatives and risks (Init)	3.20	.33	.94
Improving school practices (Impr)	3.41	.35	.95
Professional development (Prod)	3.22	.22	.90
STUDENT VIEWS [outward mode]			
Student level of agreement on the culture of the school.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Feeling good about school (Fgood)	3.02	.33	.88
Views on class teaching (Vclass)	3.35	.21	.91
Importance of education (Imped)	3.87	.19	.83
Teacher interest (Tint)	3.21	.28	.88
Social atmosphere (Satmos)	4.16	.18	.64
PARTICIPATION IN EXTRACURRICULAR ACTIVITIES. [outward mode]			
Student indication of participation in extracurricular activities.			
0=never; 1=rarely; 2=sometimes; 3=frequently; 4=always.			
Spectator at sport events (Spectsp)	1.80	.37	.64
Participating in sport events (Partsp)	2.11	.48	.86
Spectator at other events (Spectev)	1.45	.32	.69
Participating in other events (Partev)	1.28	.37	.73
Attending school socials (Socials)	1.80	.84	.75
Participating in one-day special events (Specday)	2.84	.52	.66
Number of activities (Numac)	2.05	.43	.74
Time spent on activities (Timeac)	1.26	.32	.65
ABSENTEEISM [outward mode]			
Student indication of absence from school and class.			
0=0 times; 1=1-5 times; 2=6-10 times; 3=> 10 times.			
Absent for a whole day (Day)	1.44	.31	.69
Sent out of class because of misbehaviour (Misbeh)	.52	.27	.89
Had a detention (Det)	.49	.29	.88
Suspended from school (Susp)	.11	.11	.76

Table 4 continued

Variables description and coding	Mean	S D	*PLS Estimation Loading
ENGAGEMENT WITH SCHOOLWORK [outward mode]			
Student level of agreement on six aspects related to engagement with learning			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Expected homework completed (Allexp)	3.36	.25	.83
School work finished on time (Finish)	3.47	.26	.72
Put energy into school work (Energy)	3.66	.20	.71
Do extra work (Extra)	2.35	.32	.58
Respond in class (Respond)	4.00	.23	.78
Set own goals (Owndec)	4.04	.21	.57
STUDENT OUTCOMES [outward mode]			
Student level of agreement on seven aspects related to self esteem and engagement with learning.			
1=strongly disagree; 2=mostly disagree; 3=in between; 4=mostly agree; 5=strongly agree			
Time spent on homework (Hw)	1.95	.29	.58
Understanding material in class (Undmat)	3.77	.23	.84
Confidence in success (Confid)	3.75	.24	.87
Extent of learning (Learn)	3.65	.27	.81
Expectation of graduating (Grad)	4.21	.31	.70
Satisfaction with marks (Marks)	3.56	.25	.75
Self-assessment of marks at end of year (Selfass)	3.51	.21	.82

Table 5
Direct, total and indirect effects and correlations of latent variables influencing Organisational Learning – Model 1

Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
TEACHER PROFILE	**R^2= .33 (d= 0.83) Q^2= .28**				
School Profile	.55	.07	.55	-	.55
RESOURCES	**R^2= .10 (d= 0.94) Q^2= .06**				
School Profile	-.32	.08	-.32	-	-.32
LEADER	**R^2= .53 (d= 0.68) Q^2= .51**				
School Profile	-	-	-.23	-.23	-.25
Resources	.73	.06	.73	-	.73
COMMUNITY FOCUS	**R^2= .61 (d= 0.62) Q^2= 60**				
School Profile	-	-	-.18	-.18	-.11
Resources	-	-	.57	.57	.63
Leader	.78	.03	.78	-	.78
DISTRIBUTED LEADERSHIP	**R^2= .62 (d= 0.62) Q^2= .58**				
School Profile	-.16	.07	-.34	-.18	-.31
Resources	.25	.09	.57	.32	.65
Leader	-	-	.43	.43	.69
Community Focus	.55	.07	.55	-	.73
STAFFING POLICIES	**R^2= .69 (d= 0.56) Q^2= .66**				
School Profile	-	-	-.16	-.16	-.19
Teacher Profile	.12	.06	.12	-	.06
Resources	.31	.09	.71	.40	.71
Leader	.29	.11	.55	.26	.76
Community Focus	.33	.09	.33	-	.75

Table 5 continued

Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
ACTIVE INVOLVEMENT	**R^2= .87 (d= 0.36) Q^2= .85**				
School Profile	-	-	-.23	-.23	-.29
Teacher Profile	-	-	.03	.03	-.10
Resources	.16	.06	.77	.61	.77
Leader	.60	.07	.73	.13	.90
Community Focus	-	-	.08	.01	.80
Staffing Policies	.24	.06	.24	-	.81
STAFF VALUED	**R^2= .69 (d= 0.56) Q^2= .67**				
School Profile	-	-	-.24	-.24	-.20
Teacher Profile	-	-	.02	.02	-.03
Resources	-	-	.62	.62	.71
Leader	-	-	.55	.55	.75
Community Focus	-	-	.23	.23	.70
Distributed Leadership	.34	.08	.34	-	.73
Staffing Policies	-	-	.13	.13	.74
Active Involvement	.56	.09	.56	-	.80
SCHOOL AUTONOMY	**R^2= .83 (d= 0.41) Q^2= .82**				
School Profile	-	-	-.24	-.24	-.19
Teacher Profile	-	-	.02	.02	-.09
Resources	-	-	.70	.70	.73
Leader	-	-	.64	.64	.85
Community Focus	-	-	.18	.18	.80
Distributed Leadership	.22	.07	.22	-	.75
Staffing Policies	-	-	.18	.18	.78
Active Involvement	.74	.06	.74	-	.90

Table 5 continued

Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
ORGANISATIONAL LEARNING	**R^2= .87 (d= 0.36) Q^2= .86**				
School Profile	-.12	.04	-.37	-.25	-.33
Teacher Profile	-	-	.01	.01	-.20
Resources	-	-	.65	.65	.77
Leader	.16	.07	.63	.47	.84
Community Focus	-	-	.22	.22	.75
Distributed Leadership	.15	.06	.34	.19	.80
Staffing Policies	-	-	.11	.11	.74
Active Involvement	-	-	.44	.44	.86
Staff Valued	.32	.06	.32	-	.85
School Autonomy	.35	.09	.35	-	.87

Note: JknStd refers to the Jackknife Standard Error of the Direct Effects path coefficient.
d is the residual standard error.

Table 6
Direct, total, indirect effects and correlations of latent variables influencing Student Outcomes – Model 2

Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
HOME BACKGROUND	**R^2= .10 (d= 0.95) Q^2= .07**				
SES	.32	.08	.32	-	.32
SCHOOL PROFILE	**R^2= .37 (d= 0.79) Q^2= .33**				
SES	.64	.09	.54	-.10	.54
Home Background	-.30	.10	-.30	-	-.10
TEACHER PROFILE	**R^2= .40 (d= 0.77) Q^2= .37**				
SES	.38	.08	.57	.18	.57
Home Background	-	-	-.10	-.10	.10
School Profile	.55	.09	.34	-	.55
LEADER	**R^2= .07 (d= 0.96) Q^2= .03**				
SES	-	-	-.14	-.14	-.06
Home Background	-	-	.08	.08	.21
School Profile	-.26	.09	-.26	-	-.26
ACTIVE INVOLVEMENT	**R^2= .82 (d= 0.42) Q^2= .81**				
SES	-		-.13	-.13	-.12
Home Background	-		.07	.07	.19
School profile	-	-	-.23	-.23	-.30
Leader	.90	.02	.90	-	.90
STAFF VALUED	**R^2= .64 (d= 0.60) Q^2= .62**				
SES	-	-	-.10	-.10	-.18
Home Background	-	-	.06	.06	.02
School Profile	-	-	-.19	-.19	-.23
Leader	-	-	.72	.72	.76
Active Involvement	.80	.04	.80	-	.80

Table 6 continued

Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
SCHOOL AUTONOMY	**R^2= .82 (d= 0.42) Q^2= .80**				
SES	-	-	-.12	-.12	-.06
Home Background	-	-	.07	.07	.09
School Profile	-	-	-.22	-.22	-.20
Leader	.20	.10	.85	.65	.85
Active Involvement	.72	.09	.72	-	.90
ORGANISATIONAL LEARNING	**R^2= .86 (d= 0.37) Q^2= .85**				
SES	-	-	-.18	-.18	-.21
Home Background	-	-	.10	.10	.06
School Profile	-.14	.04	-.33	-.19	-.34
Leader	-	-	.75	.75	.83
Active Involvement	-	-	.71	.71	.86
Staff Valued	.43	.06	.43	-	.86
School Autonomy	.51	.06	.51	-	.87
STUDENT VIEWS	**R^2= .39 (d= 0.78) Q^2= .35**				
SES	-	-	.14	.14	.05
Home Background	.57	.07	.59	.02	.58
School Profile	-	-	-.07	-.07	-.03
Leader	-	-	.17	.17	.28
Active Involvement	-	-	.16	.16	.23
Staff Valued	-	-	.10	.10	.16
School Autonomy	-	-	.12	.12	.23
Organisational Learning	.23	.08	.23	-	.26
PARTICIPATION IN EXTRACURRICULAR ACTS	**R^2= .50 (d= 0.71) Q^2= .46**				
SES	-	-	-.22	-.22	-.21
Home Background	.31	.08	.50	.18	.37
School Profile	-.60	.06	-.60	-	-.63

Table 6 continued

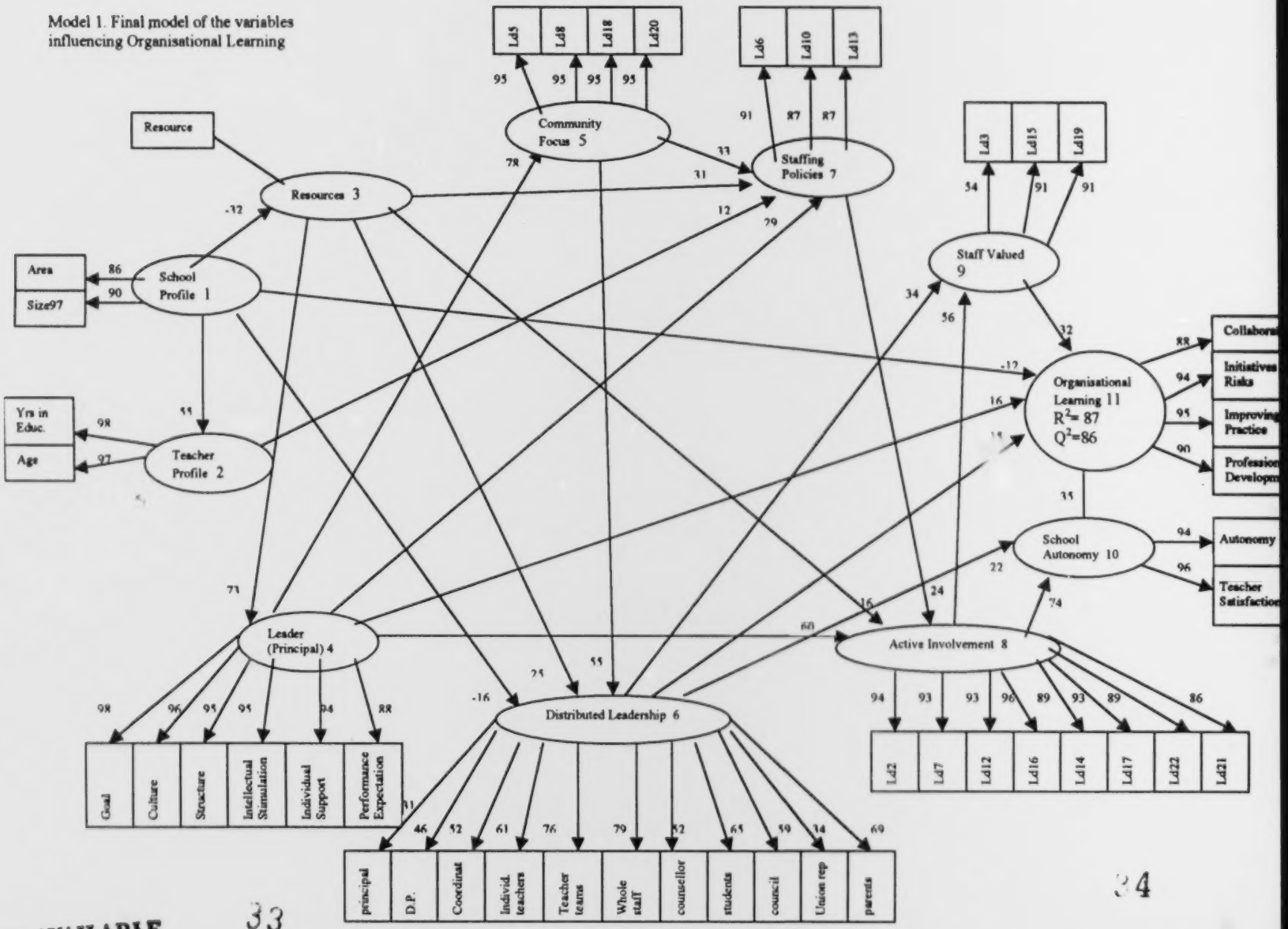
Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
ABSENTEEISM	**R^2= .40 (d= 0.77) Q^2= 34**				
SES	-.31	-.08	-.40	-.09	-.38
Home Background	-	-	-.28	-.28	-.37
School Profile	-	-	-.01	-.01	-.23
Leader	-	-	.08	.08	-.02
Active Involvement	-	-	.11	.11	.07
Staff Valued	.23	.09	.18	-.05	.21
School Autonomy	-	-	-.06	-.06	.03
Organisational Learning	-	-	-.11	-.11	.12
Student Views	-.49	.09	-.49	-	-.47
ENGAGEMENT WITH SCHOOLWORK		**R^2= .61 (d= 0.62) Q^2= .56**			
SES	-	-	.31	.31	.24
Home Background	.40	.07	.65	.25	.64
School Profile	-	-	.03	.03	-.02
Leader	-.20	.08	-.17	.03	-.02
Active Involvement	-	-	.02	.02	-.03
Staff Valued	-	-	-.02	-.02	-.13
School Autonomy	-	-	.05	.05	-.03
Organisational Learning	-	-	.10	.10	-.03
Student Views	.32	.09	.47	.13	.62
Absenteeism	-.27	.09	-.27	-	-.57

Table 6 continued

Variable	Direct Effects *p*	JknStd Error	Total Effects *t*	Indirect Effects *i*	Correlation *r*
STUDENT OUTCOMES	R^2= .74 (d= 0.51)		Q^2= .71		
SES	-	-	.35	.35	.30
Home Background	.20	.08	.64	.44	.68
School Profile	-	-	.03	.03	.12
Teacher Profile	.12	.05	.12	-	.16
Leader	-	-	-.02	-.02	.08
Active Involvement	-	-	.04	.04	.05
Staff Valued	-	-	-.01	-.01	-.06
School Autonomy	-	-	.07	.07	.07
Organisational Learning	-	-	.13	.13	.03
Student Views	.32	.08	.56	.24	.72
Absenteeism	-.17	-.07	-.26	-.09	-.60
Engagement with Schoolwork	.34	-.08	.34	-	.76

Note: JknStd refers to the Jackknife Standard Error of the Direct Effects path coefficient.
d is the residual standard error.

Model 1. Final model of the variables influencing Organisational Learning



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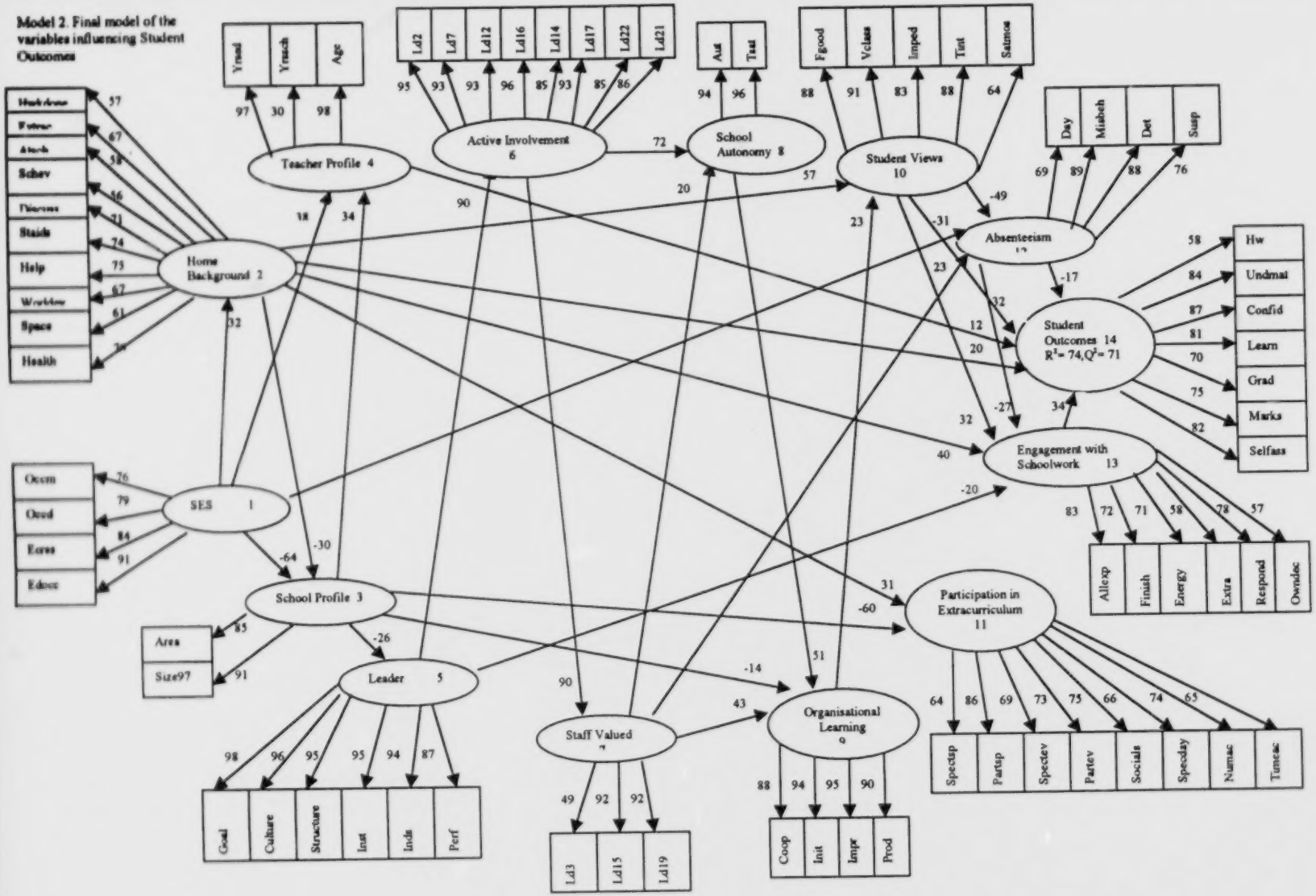
Model 2. Final model of the variables influencing Student Outcomes



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